

# **Clinical Examination of Antioxidant Potential by Ingestion of Nectura®**

(Report)

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# Lifestyle-related Diseases and Free Radicals (FR)

## Lifestyle-related Diseases

- Lifestyle-related diseases are caused by a prolonged unhealthy lifestyle.
- Poor diet, lack of exercise, inadequate sleep, smoking and excessive alcohol consumption are the main causes of lifestyle-related diseases.
- High blood pressure, hyperlipidemia (excessive fat in the blood), arterial sclerosis, diabetes, cardiovascular disease, kidney disease and cancer, are related diseases.

## Free Radicals ▪ Oxidative Stress

- Excess fat intake, lack of complete and balanced nutrition, excess sugar intake, and lack of fiber in one's diet, can be a major cause(s) of free radicals and oxidative stress.  
(Undigested food material that remains in one's digestive system, can cause nutritional oxidative stress-related medical conditions and diseases.)
- Environmental pollutants containing harmful chemical substances have negative effects on the human body.  
(Chemical substances accumulate in cell tissues as xenobiotics or toxins, causing oxidative stress in the body.)
- The human body has a natural defense system, whereby its immune system attempts to eliminate stress-causing substances - byproducts of this process are active oxygen and free radicals (FR).

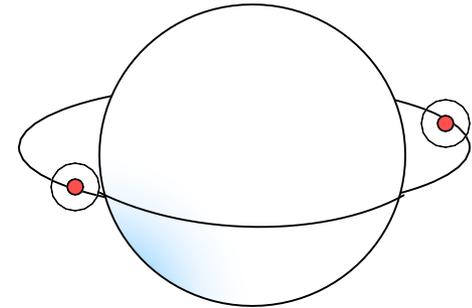
**A Free Radical is a molecule with an unpaired electron.  
Free Radicals include radical and non-radical types.**

## ○ Types of active oxygen

### ○ Non-radical

Reserve potential candidates for becoming radical (by, for example, radical-scavenging activity, whereby a radical molecule takes an electron away from a non-radical molecule, thus resulting in a non-radical molecule turning into a radical molecule).

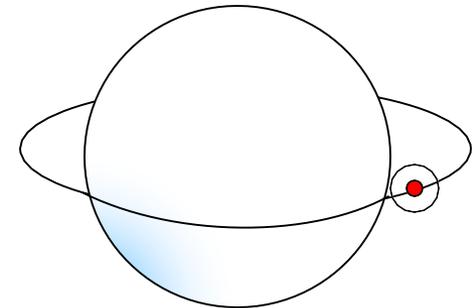
O<sub>2</sub>, H<sub>2</sub>O<sub>2</sub>, LOOH, O<sub>3</sub>, HOCl



A paired electron is stable.

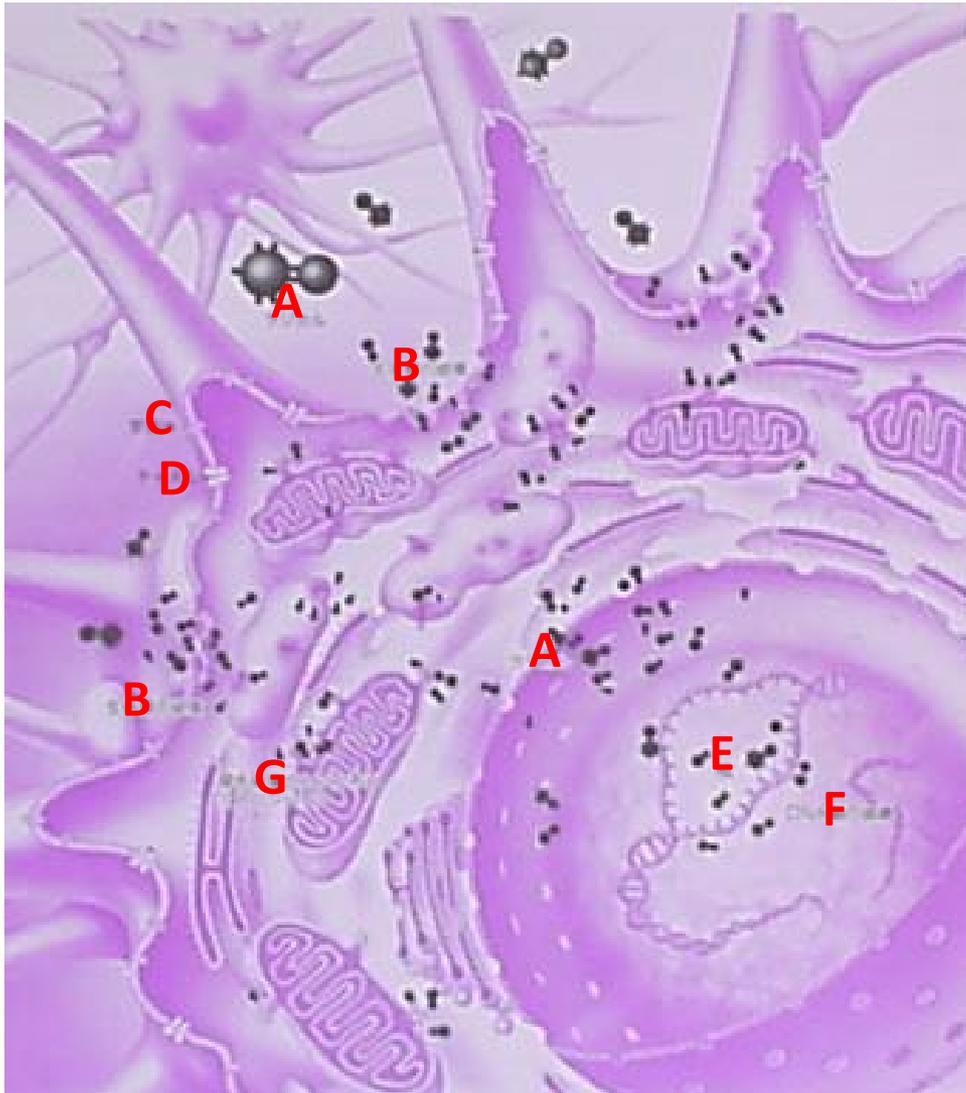
### ○ Radical

O<sub>2</sub>, OH, O<sup>-2</sup>, HOO, LOO,  
LO, NO<sub>2</sub>



A single electron is unstable.

## Nerve cell damage caused by Free Radicals



- A Radical
- B Depredation of Cell Membranes
- C Receptor
- D Channel
- E Nucleus
- F Destruction of DNA Strands
- G Destruction of the Mitochondrial Membrane

(Excerpt from a publication by Dr. Norio Ogawa)

# Causes of Active Oxygen and How it Relates to Disease

Factors that affect the internal body environment

•Daily lifestyle

•Stress resulting from an unhealthy diet

•Gastrointestinal function

•Nutrient deficiency • nutrition

•Psychological factors

•Environmental factors

•Physical factors (Soil quality, climate, water supply, etc.)

Active Oxygen Free Radicals

$O_2, ^1O_2,$   
 $OH, H_2O_2,$   
 $OCl, NO,$   
 $NO_2, LOO$

Attack

Fat → Excessive oxidation

Protein → metamorphosis

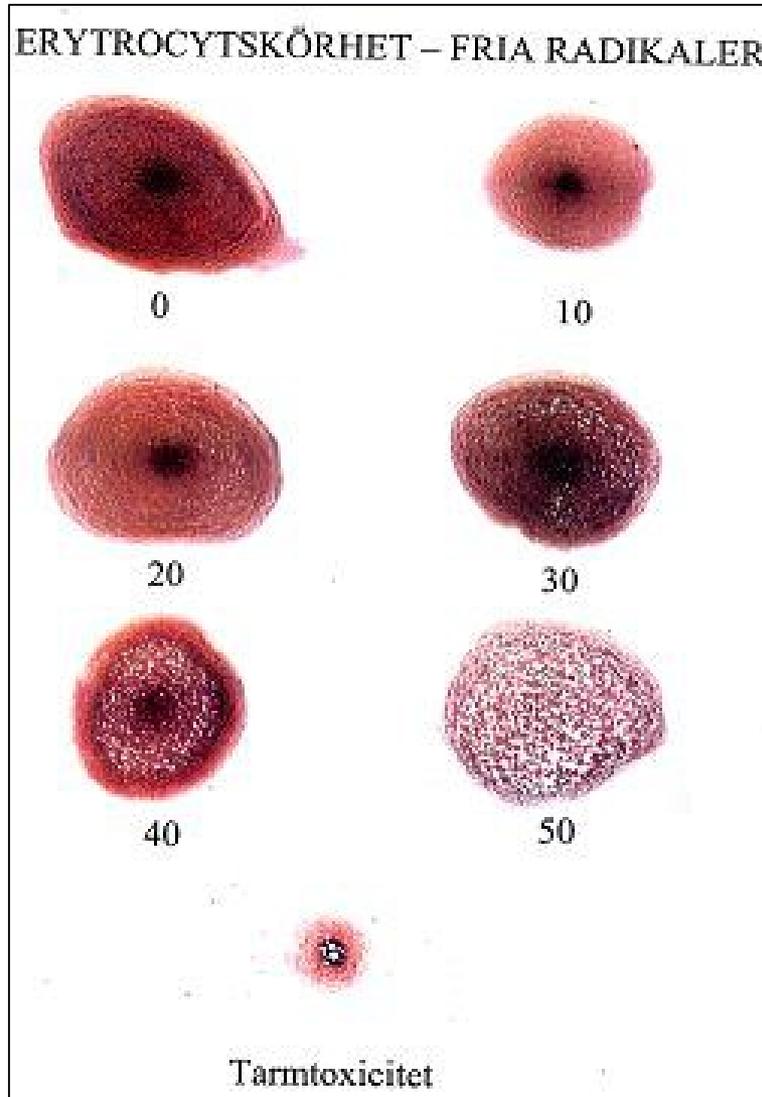
Enzymes → deactivation

Nucleic acid → dissolved

- Lifestyle-related diseases
- Aging

■ Examination of the Degree of Active Oxygen

Prof. Per-Arne Öckerman



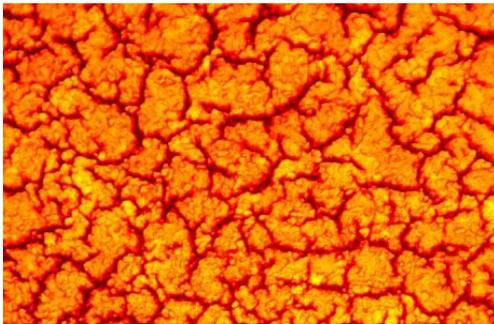
Free radical activity

Normal	0 ~ 5
Very slight	6 ~ 10
Slight	11 ~ 15
Moderate	16 ~ 25
Strong	26 ~ 35
Very strong	36 ~ 50



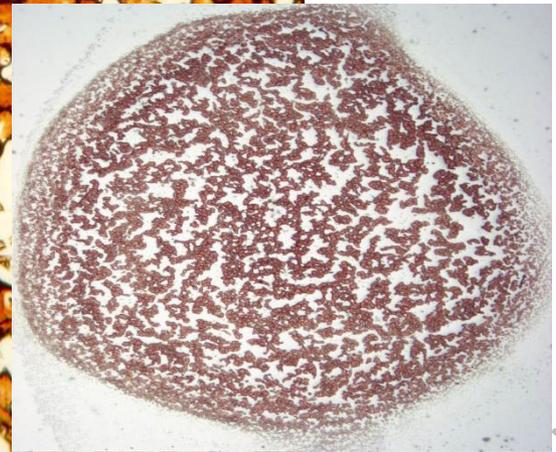
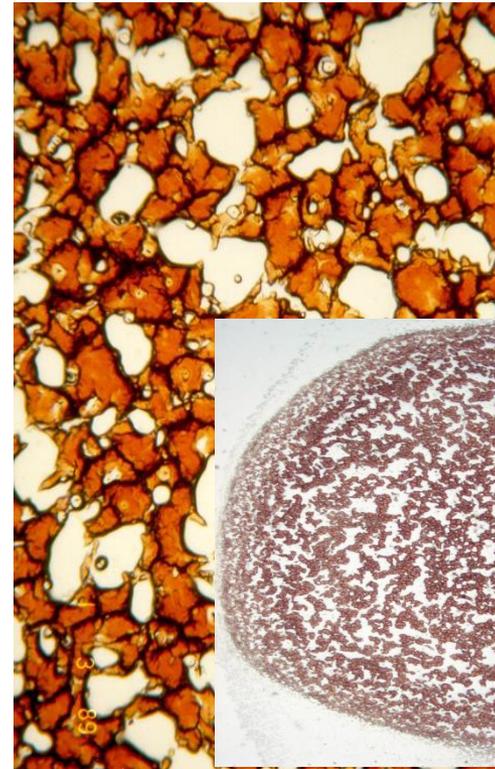
# Method for Assay of FR Activity

Prof. Öckerman



Antioxidant control – oxidation is completely controlled

Free Radicals are controlled.



Excessive Free Radicals

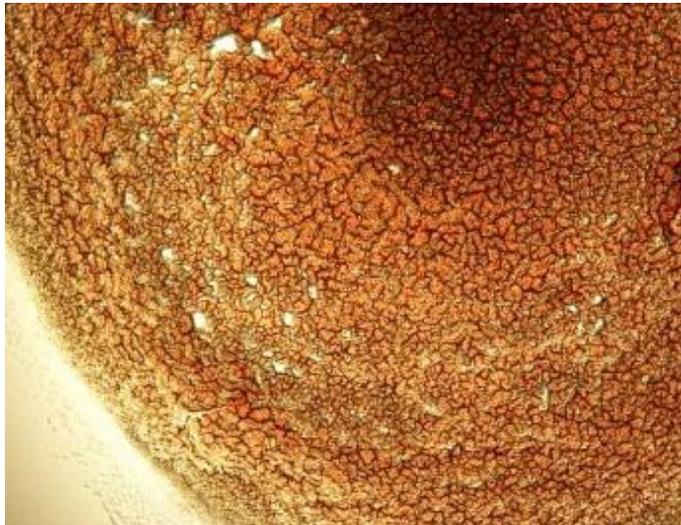
Out of control = Danger!!

## Nectura® Human Trial - Nectura® Kills Free Radicals

Efficacy Assessment (CSF-test shows an improvement in oxidative stress)

### Case 2: 45-year old male

Before



Before Nectura® ingestion - **2010.12.28**

Active Oxygen (OFS-Test) 25

Red cells were hemolyzed by excessive active oxygen, resulting in visible white spots.

After



After Nectura® ingestion - **2011.3.7**

Active Oxygen (OFS-Test) 10

Red cells were hemolyzed by excessive active oxygen, resulting in visible white spots. Formation of the cellulose net is clear due to a decrease in active oxygen, resulting in small white spots.

## Efficacy Assessment (CSF-test shows an improvement in oxidative stress)

### Case 5: 55-year old male

Before

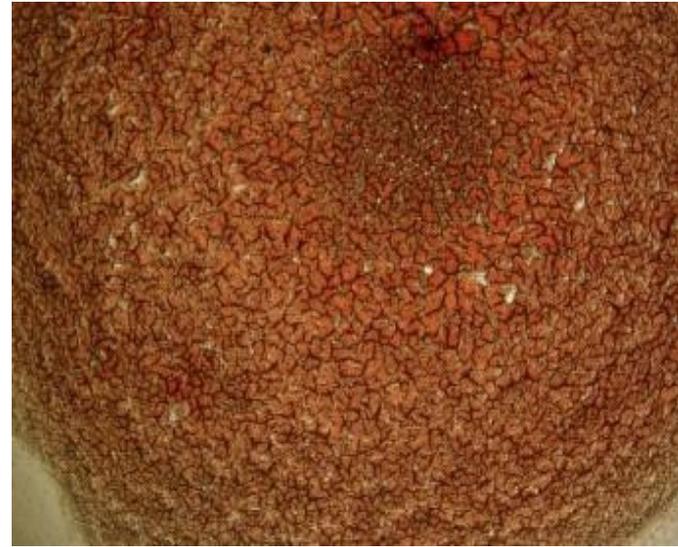


Before Nectura® ingestion - **2010.12.30**

Active Oxygen (free radicals) 28

Red cells are characterized by excessive oxidation caused by excessive active oxygen, resulting in visible white spots.

After



After Nectura® ingestion - **2011.3.7**

Active Oxygen (free radicals) 20

White spots are smaller due to a decrease in active oxygen.

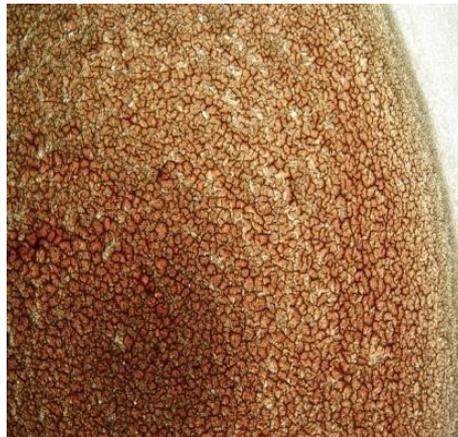
## Efficacy Assessment (CSF-test shows an improvement in oxidative stress)

### Case 8: 71-year old male



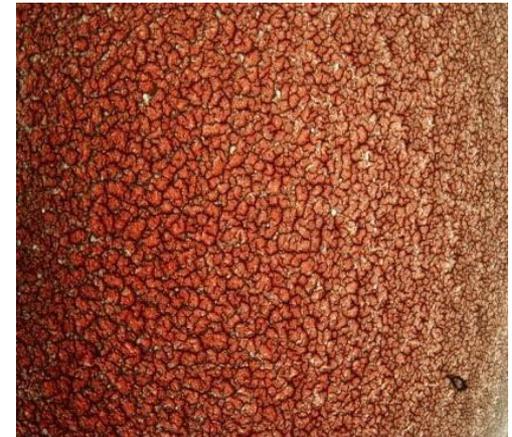
Before Nectura® ingestion - **2011.1.5**  
Active Oxygen (OFS-Test) 26

Irregular small and large white spots are visible in a broad area, caused by excessive active oxygen.



During Nectura® ingestion - **2011.1.5**  
Active Oxygen (OFS-Test) 17

White spots are smaller.



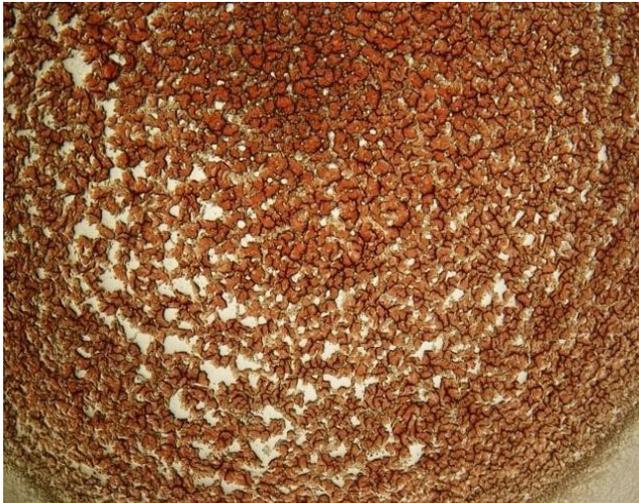
After Nectura® ingestion - **2011.3.17**  
Active Oxygen (OFS-Test) 15

White spots are visible to a limited extent.

## Efficacy Assessment (CSF-test shows an improvement in oxidative stress)

### Case 6: 49-year old male

Before



Before Nectura® ingestion - **2011.1.4**  
Active Oxygen (OFS-Test) 32

Irregular small and large white spots are visible in a broad area, caused by excessive active oxygen.

After



After Nectura® ingestion - **2011.3.5**  
Active Oxygen (OFS-Test) 28

White spots are smaller due to a slight decrease in active oxygen.